STUDIES ON AUSTRALIAN MOLLUSCA.

Part VI.

By C. Hedley, F.L.S.

(Plates i.-iii.)

(Continued from Vol. xxvi., p. 708.)

Bornia filosa, n.sp.

(Plate ii., figs. 15-17.)

Shell small, thin, compressed, subtrigonal, nearly as high as long, inequilateral. White. Sculpture: numerous close fine radiating hair lines, which in the young shell are disposed in several divaricating bundles; on the older shell they radiate more regularly, and are cut into beads by concentric grooves. Anteriorly and posteriorly the radii diverge abruptly from the sculpture of the median area. Length 6, height 5 mm.

Hab.—Port Jackson; one valve adhering to an annelid tube, taken by myself in Middle Harbour.

Type to be presented to the Australian Museum.

Rochefortia donaciformis, Angas.

Mysella donaciformis, Angas, P.Z.S. 1878, p. 863, pl. liv., f. 13.

(Plate i., figs. 10-14.)

Angas described and figured this species from South Australia, but his illustration has been condemned by Dall and others as unsatisfactory. A series of drawings is therefore now given of a shell I gathered at Middle Harbour, in length 6 mm., and in

height 5 mm. The species has already been recorded from this coast by Henn.* The generic title used is adopted from Dall's investigations.†

CONGERIA LUNATA, n.sp.

(Plate i., figs. 1-4.)

Valves narrow, crescentic, subspiral, thin. Posterior side rounded, divided by an acute keel from the anterior which is concave, and infolded to one-third of the length of the shell, with a slight median byssal gape. Colour white, rayed with purple, under a thin glossy brown epidermis. Sculpture: close fine waved growth-lines. Interior slightly nacreous. Septum reduced to a narrow groove, ending above in a small pit. Anterior cardinal margin with two or three oblique folds. Ligament internal, running within the dorsal margin and curving up in a groove under the umbo. Umbo acute, twisted, showing the prodissoconch on the summit. Height 25, length 16, breadth of conjoined valves 13 mm.

Hab.—Keppel Bay, Queensland; one specimen collected by Mr. G. L. Pilcher in 1887.

Type to be presented to the Australian Museum.

This species adds a genus to the Australian fauna.

MACTRA PARKESIANA, n.sp.

(Plate i., figs. 5-9.)

Valves nearly equilateral, not much longer than high, rather compressed, thin, rounded anteriorly and ventrally, slightly produced and angled posteriorly. Colour white; surface smooth and glossy, under the lens appear delicate growth striæ, faint radial scratches and anteriorly oblique vermiculate wrinkles. Two sharp narrow ridges border the posterior dorsal slope. Anterior dorsal area sunken, but not sharply defined. The anterior lateral region of the hinge of the right valve presents two pockets, one above

* Henn, P.L.S.N.S.W. (2), ix., p. 180.

† Dall, Trans. Wagner Inst., iii., pt. v., 1900, p. 1157.

the other, from the lower and larger of which there protrudes a slender tongue attached dorsally, but free ventrally. In the corresponding position of the left valve are two pockets divided by a septum which is continued into the anterior arm of the cardinal. Length 20, height 16, breadth of conjoined valves 9 mm.

Hab.—Port Jackson; one specimen, containing the animal, was found on Balmoral Beach by Miss L. Parkes, a daughter of the veteran Australian statesman, in whose honour it is named.

Type.—Miss Parkes has generously presented her specimen to the Australian Museum.

This species belongs to the Section *Mactrinula*; the absence of plicate sculpture distinguishes it from other members of the group.

RETUSA NITIDA, A. Adams.

(Plate ii., fig. 27.)

Bulla nitida, Ad., Thes. Conch. ii., 1850, p. 589, pl. 125, f. 127.

Numerous specimens of a shell taken by Mr. J. Brazier in Torres Straits appear to be this species. It is an addition to the Australian fauna; indeed, except for a record from the Persian Gulf,* it seems only known from the original locality, Borneo. As the original account is rather unsatisfactory, I add a figure and description of a Torres Straits example.

Shell small, ovate, rather thin, narrowly umbilicate above, subperforate below. Colour white. Sculpture: faint longitudinal oblique growth-lines are crossed for the anterior and posterior quarters by half a dozen lightly incised grooves; the vertex also radiately traversed by a few delicate raised threads, leaving the median half of the shell bare of ornament. Aperture ample below, constricted at the waist, narrow above and rising in an arch above the vertex. Columella broad and twisted. Height 3·5, breadth 2·7 mm.

* Melvill & Standen, Proc. Zool. Soc., 1901, p. 454.

PYRGULINA PERSPECTIVA, n.sp.

(Plate iii., fig. 33.)

Shell small, solid, conical. Colour white. Whorls five, besides a prostrate heterostrophe apex of three turns, flattened, separated by a deeply channelled suture. Sculpture: the last whorl has above a series of about twenty straight oblique bars, about their own breadth apart, confluent at their lower margin but not on the upper one, both margins sinuated by the projecting ends of the bars. Below these bars is a deep groove succeeded by a narrow peripheral rib. On the base are a few fine spiral threads intersected by growth-lines. The hollows between the bars are crossed by fine spiral threads. The series of oblique bars ascend the spire; the bars do not correspond across the suture. Periphery of the two topmost whorls slightly constricted. Base somewhat hollowed. Aperture broken in the specimen studied, but a prominent tooth on the columella remains. Height 2·2, breadth 1·08 mm.

Hab.—With *P. senex;* one specimen.

Type to be presented to the Australian Museum.

From those that most resemble it, this species may be distinguished by the smaller size and striated interstices.

PYRGULINA SENEX, n.sp.

(Plate iii., fig. 31.)

Shell small, solid, subcylindrical. Colour white. Whorls three and a half, besides an elevated, median, heterostrophe apex of two turns, shouldered abruptly and separated by a deeply channelled suture. Sculpture: the last whorl has above two spiral keels joined at intervals by about 14 short perpendicular bars, beaded at the points of intersection and enclosing square meshes. Anterior to these are six widely spaced spiral keels, gradually diminishing and approximating as they recede. One plain and the two ornate keels ascend the spire Delicate oblique growth-lines occur in the hollows of the prominent

sculpture. Aperture ovate, with a parietal callus and a small deeply seated plication, throat grooved. Height 1·57, breadth 0·8 mm.

Hab.—Ten miles south of Cape Sidmouth, N. Queensland, in 13 fathoms; two specimens (J. Brazier).

Type to be presented to the Australian Museum.

A fancied resemblance to the bald head and hunched shoulders of an old man suggested a name for this shell.

Pyrgulina zea, n.sp.

(Plate iii., fig. 34.)

Shell small, solid, conical, imperforate. Colour white. Whorls four, besides a sunken heterostrophe apex, separated by deeply channelled sutures. Sculpture: the body whorl has above three rows of beads, confluent perpendicularly, about 18 to a row, set about their breadth apart; anterior to these is a deep groove and a peripheral keel, on the base are two smaller keels. The triple row of beads, but not the peripheral keel, ascend the spire. On each whorl the perpendicular bead rows are set at a slightly different angle to the axis of the shell. Aperture slightly oblique, faintly grooved within, no parietal callus, plication single, small and deeply seated. Height 1·8, breadth 0·88 mm.

Hab.—Ten miles south of Cape Sidmouth, N. Queensland, in 13 fathoms; one specimen (J. Brazier).

Type to be presented to the Australian Museum.

Pyrgulina umeralis, n.sp.

(Plate iii., fig. 32.)

Shell small, very solid, imperforate, elongate-ovate. Whorls three and one-half, besides the elevated lateral heterostrophe apex, separated by a deeply channelled suture. Colour white. Sculpture: the body whorl has above a double row of beads, each bead confluent from above to below, about sixteen beads to a row, set less than their breadth apart These are followed anteriorly by a deep groove and a stout peripheral keel. Thence to the anterior

extremity are four or five grooves and keels diminishing successively. On the spire the double row of beads and peripheral keel alone appear. Aperture slightly oblique, ovate, with a heavy callus and single stout deep-seated tooth on the parietal wall; the throat traversed by six ridges. Height 1·72, breadth 0·88 mm.

Hab.—Princess Charlotte Bay, N. Queensland, 13 fathoms, sandy mud bottom; three specimens (J. Brazier).

Type to be presented to the Australian Museum.

Crossea biconica, n.sp.

(Plate ii., fig. 24.)

Shell minute but solid, biconical, base greatly produced, periphery keeled. Colour white. Whorls four, somewhat turreted. Sculpture: first and second whorls smooth, third comparatively coarsely cancellated, fourth with dense fine spiral cords crossed by fainter growth-lines which tend to bead the interstices. Base two-thirds of the total height. Umbilicus wide and deep, bordered by a conspicuous ridge, and having an elevated funicle winding within. Aperture oblique, rhomboidal, channelled by the umbilical ridge, and with a gutter at the termination of the funicle. A heavy outstanding varix occurs a short distance behind the aperture. Height 1·7, major diam. 1·6, minor diam. 1 mm.

Hab.—Torres Straits, between Cape York and New Guinea; one specimen, in company with *Crossea striata*, Watson, dredged by Mr. J. Brazier in 8 fathoms, on a sandy mud bottom.

Type to be presented to the Australian Museum.

The small size, produced base, and wide umbilicus are characters which distinguish this from other Australian members of the genus. Renewed study strengthens the conviction, which I have already expressed, that *Crossea* is unhappily associated with *Scala*, and that it would be more appropriately ranked with *Trichotropis* or *Fossarus*.

Having examined the type of *Crossea minuta*, Petterd, I am unable to agree either with its author that it is a *Crossea*, or

with Tate and May* that it is a *Fossarus*. It seems to me a larval shell of the Sinusigera form.

Crossea gatliffi, n.sp.

(Plate ii., fig. 25.)

Shell small, thin, globose-conical, spire elevated, gradate, basal funicle slightly developed. Colour white (?bleached). Whorls four. Sculpture: last whorl with fine, close spiral threads of which every fourth is larger; at irregular intervals incipient varices traverse the whorl; on the penultimate whorl the spiral sculpture is more coarse and distant. Umbilicus narrow, bordered by a slight rib, which continuing to the anterior extremity is there notched by the pseudocanal. Aperture oval, outer lip thin and everted. Height 1·16, major diam. 1·1, minor diam. 0·94 mm.

Hab.—With *C. biconica;* one specimen.

Type.—To be presented to the Australian Museum.

This species is named in honour of my friend Mr. J. H. Gatliff, of Melbourne. The thin shell, lack of longitudinal sculpture, tabulated whorls, and feeble basal funicule distinguish it. *C. striata*, perhaps its nearest ally, is much larger, with conspicuous reticulate sculpture and a double umbilical rib.

Teinostoma involuta, n.sp.

(Plate iii., fig. 35.)

Shell small, solid, globose, spire slightly exserted, umbilicus broad and deep. Whorls 3½, divided by a deeply channelled suture, rapidly increasing, last whorl broadening and descending at the aperture. Sculpture: first whorl smooth, the rest carrying a row of tubercles along the crown and basal edge, on the last whorl about twenty above and fifteen below. The intervening space is obliquely traversed by fine, close irregularly waved riblets, narrower than their smooth interstices; these may fork or end abruptly, but at either end of their course usually unite in bundles of twos or threes to form the upper or lower tubercle. Their

* Tate & May, these Proceedings, 1901, p. 458.

appearance is suggestive of a continuous rib split into riblets for most of its length but holding together at top and bottom. Aperture very oblique, narrowly ovate, pointed above; peristome double and massive, intruding a broad free lobe into the umbilicus, and clinging to the umbilical edge with a lesser lobe. Umbilicus broad, perspective smooth and excavated within the string of beads which bounds it. Height 1·3, major diam. 1·34, minor diam. 1·2 mm.

Hab.—Off Darnley Island, Torres Straits, in 10-30 fathoms; one specimen (J. Brazier).

Type.—To be presented to the Australian Museum.

This species resembles certain forms of *Liotia* such as *L. devexa*, Hedley, from the same region. The assignment of it to *Teinostoma* is governed by the umbilical tongue, a rather artificial character. As I have previously indicated, outlying forms of *Liotia* so approach some species of *Teinostoma* that it is difficult to allot to each its species.

Liotia corona, n.sp.

(Plate ii., figs. 21-23.)

Shell minute, discoid, not nacreous; spire sunken, umbilicus wide and shallow. Whorls three, last half-whorl scarcely in contact with the others, suddenly and deeply deflected. Colour white (? bleached). Sculpture: last whorl ringed by 16 thick, projecting, distant ribs which fade above and below at the sutures, these ribs continuing on the suture for about half a whorl. Interstices of the ribs faintly spirally scratched. Aperture very oblique, circular, fortified by a varix. Height 0·28, major diam. 0·82, minor diam. 0·66 mm.

Hab.—With *Crossea biconica;* four specimens.

Type.—To be presented to the Australian Museum.

Liotia incidata, n.sp.

(Plate ii., figs. 18-20.)

Shell depressedly globose, rather solid, perforate, flattened on the base. Whorls three, margined at the suture, last slightly

gibbous and descending, constricted behind the aperture. Sculpture: above finely spirally grooved, hollowed at the periphery between two keels, on the base with radial riblets latticed by spiral threads. Aperture subquadrate, very oblique, peristome everted, slightly thickened. Height 0·7, major diam. 1·14, minor diam. 0·96 mm.

Hab.—Between Cape York and New Guinea, in 8 fathoms, sandy mud bottom; one specimen (J. Brazier).

Type.—To be presented to the Australian Museum.

Mecoliotia spinosa, n.sp.

(Plate ii., fig. 26.)

Shell minute, solid, broader than high, spire elevated, base flattened. Colour white (? bleached). Whorls four and one-half in the decollate example studied. Sculpture: a strong projecting spiral keel runs down the last three whorls, beneath which on the body whorl is a deep narrow groove and sharp cord, succeeded by a smaller groove and cord. Radiating ribs, of which the last whorl has fourteen, commence at the suture, develop sharp points on the spiral keel, partition the peripheral groove into a series of deep narrow pits, bead the peripheral rib and disappear. A minor sculpture of faint spiral threads is visible above and beneath the periphery. Umbilicus wide but rapidly narrowing above. Aperture very oblique, circular, double, with a broadly expanded varix. Height 0·84, major diam. 1, minor diam. 0·82 mm.

Hab.—Off Pipon Islands, N. Queensland; 9 fathoms, mud bottom; one specimen (J. Brazier).

Type.—To be presented to the Australian Museum.

This species is smaller, with a wider umbilicus and more prickly sculpture, than *M. halligani*.*

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* Hedley, Atoll of Funafuti, 1899, p. 555.

Aplustrum brazieri, Angas.

Diaphana brazieri, Angas, Proc. Zool. Soc. 1877, pp. 175, 189, pl. xxvi., f. 20.

(Plate iii., fig. 36.)

A specimen specifically identified by Mr. Brazier is here figured. It is 4 mm. in length and was obtained in sandy mud off Watson's Bay in 10 fathoms—a few hundred yards from where the same collector found the type. If Mr. Brazier's determination is correct, which I have no reason to doubt, then Angas' figure is extremely bad. Moreover, I conclude that the species is wrongly placed in *Diaphana*, and should be transferred to *Aplustrum*. Pilsbry, who remarked how ill the species agreed with *Diaphana*, created a section *Austrodiaphana* for its reception,* which might rank as a subgenus of *Aplustrum*. A large example of this species which I have examined reached a length of 5 mm.

Clanculus denticulatus, Gray.

Gray in King's Survey of the Intertropical and Western Coasts of Australia, ii., 1827, Appendix, p. 479.

By modern writers this has been treated as a lost species. Specimens were taken at Geraldton, W.A., by Mr. A. U. Henn, which I recognised as the shell described by Menke† as *Monodonta lupina*, and afterwards illustrated by Philippi.‡ Menke, who, doubtless had good grounds for the belief, ultimately considered§ that his species was identical with Gray's *Monodonta denticulata*. This withdrawal of his species escaped the notice of Prof. Tate‖ in his revision of Menke's shells. *Trochus atropurpureus*, Gould, and *T. samoensis*, Hombron & Jacquinot, appear to be synonyms of Gray's species.

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* Pilsbry, Man. Conch. xv., 1893, p. 287.

† Menke, Moll. N. Holl. Spec. 1843, p. 15.

‡ Philippi, Conch. Cab. Bd. ii., Abth. 3, 1846, p. 237, pl. 36, f. 3.

§ Menke, Zeit. für Malak. 1844, p. 58.

‖ Tate, P.L.S.N.S.W., vi., 1881, p. 393.

Clathurella denseplicata, Dunker.

Pleurotoma (*Drillia*) *denseplicata*, Dunker, Mal. Blätt. xviii., 1871, p. 159; Weinkauff, Conch. Cab. Bd. iv., Abth. 3, 1887, p. 107, pl. 23, ff. 7, 9.

This species, collected in Bass Straits by a correspondent of the Godeffroy Museum, and of which the type is probably in the Hamburg Museum, has apparently been overlooked by Australian conchologists. From the figure and description I judge this species to be identical with *Clathurella philomenæ*, Ten. Woods, over which it has priority.

Cochlodesma angasi, Crosse & Fischer.

On a beach near the house of my friend, Mr. W. L. May, I saw for the first time a living animal of this species. The siphons are not protected by a sheath like those of *Anatina*, and can be wholly retracted within the valves. These characters accord better with *Cochlodesma* than with *Anatina*, to which Angas (P.Z.S., 1865, p. 644) erroneously transferred it.

Arca zebra, Swainson.

Swainson, Zool. Illustrat. 2nd Ser. iii., 1833, pl. 118.

An example of this shell from Sydney Harbour has been handed to me by the Hon. J. Norton, M.L.C. This species has not to my knowledge been recorded from the coast of New South Wales. Dr. Norton's discovery was confirmed by Mr. H. L. Kesteven, who again collected it at the Inner South Head.

Philobrya crenatulifera, Tate.

Tate, Trans. Roy. Soc. S.A. xv., 1892, p. 131, pl. i., ff. 11, 11*a*.

This species has not been seen so far north as this State. I can now announce that I found it in a cleft of the cliffs a mile south of the South Head Lighthouse, where I took *Zidora loddereæ*, Tate & May, *Sirius badius*, T. Woods, *Cæcum amputatum*, Hedley, and other rarities. During her recent visit to Sydney Miss Lodder also collected *P. crenatulifera* at Long Bay.

EULIMELLA PULCHRA, Brazier.

Eulimella pulchra, Brazier, P.L.S.N.S.W. (2), ix., 1894, p. 170, pl. xiv., f. 6.

Eulimella tricincta, Tate, Trans. Roy. Soc. S.A., xxii., 1898, p. 83, pl. iv., f. 4.

Although I prepared both of the illustrations mentioned I did not recognise that they applied to one species. Brazier's example was young. On re-examination of authentic material I can affirm their identity.

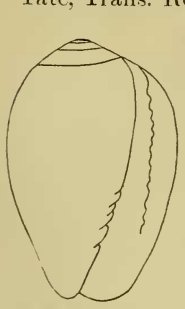
CYCLOSTREMA PORCELLANA, Tate & May.

Tate & May, Trans. Roy. Soc. S.A. xxiv., 1900, p. 102.

Specimens of this were collected in Sydney Harbour by Mr. H. L. Kesteven, whose determination of them was confirmed by Mr. W. L. May.

MARGINELLA SUBBULBOSA, Tate.

Tate, Trans. Roy. Soc. S.A., i., 1878, p. 86.



M. subbulbosa.

This species is a new record for New South Wales. Mr. H. L. Kesteven, who drew my attention to it, has kindly prepared sketches for the accompanying figures of it and *M. strangei*. Tate and May lately united these, but the outline sketches here presented will demonstrate the difference and validity of each.

M. strangei.

TROPHON GOLDSTEINI, Ten. Woods.

Ten. Woods, Proc. Roy. Soc. Tas. 1875, p. 136.

Mr. R. L. Cherry, in finding this shell on the beach at Catherine Hill Bay, has added another species to the fauna of New South Wales.

Marginella mayii, Tate.

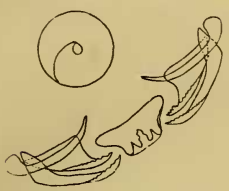
Tate, Trans. Roy. Soc. S.A. xxiv., 1900, p. 93.

Mr. Brazier has shown me a shell of which he took a single specimen in 8 fathoms off the Inner North Head, Sydney Harbour. By comparison with an authentic specimen received from Mr. W. L. May I have identified this as a dwarf form of *M. mayii*.

Vermetus caperatus, Tate & May.

Thylacodes caperatus, Tate & May, Trans. Roy. Soc. S.A. xxiv., 1900, p. 94.

During a recent excursion of the Field Naturalists' Club to Balmoral this species was found by myself and others for the first time in Australia in plenty under stones at half tide level.



Operculum and radula.

The authors of this species state that the animal is unknown. Mr. H. L. Kesteven has kindly prepared for me the drawings for the accompanying illustrations of the operculum, radula and the jaw as a whole and in detail. The presence of an operculum necessitates the removal of the species from *Thylacodes*.

Jaw.

Bifidaria macleayi, Brazier.

Pupa (*Vertigo*) *macleayi*, Brazier, Proc. Linn. Soc. N.S.W. i., 1876, p. 110.

(Plate iii., fig. 39.)

My drawing of this hitherto unfigured species is taken from an authentic specimen in the Macleay Museum, 2·5 mm. in length. It is labelled Barnard Islands, No. iii., a locality not named in the original description. The genus *Bifidaria* was described by Sterki.*

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* Sterki, The Nautilus, vi., p. 99, Jan. 1893.

PUPINA CROSSEI, Brazier.

Pupina crossei, Brazier, Proc. Linn. Soc. N.S.W. i., 1876, p. 110.

(Plate iii., fig. 38.)

One of the type shells in the Macleay Museum is here illustrated. It is from Palm Island (I understand the most northern of that archipelago was the only one visited by the Chevert Expedition), and is 7 mm. in length.

PUPINA NITIDA, Brazier.

Pupina nitida, Brazier, Proc. Linn. Soc. N.S.W. i., 1876, p. 136.

(Plate iii., fig. 37.)

One of the original lot from Barrow Island is here figured. It is 9 mm. in length.

SITALA REEDEI, Brazier.

Helix (*Conulus*) *reedei*, Brazier, Proc. Linn. Soc. N.S.W. i., 1876, p. 101. *Helix* (*Conulus*) *maino*, Brazier, *loc. cit.* *Conulus maino*, Hedley, *op. cit.* (2), vi., p. 75, pl. ix., f. 6. *Sitala maino*, Hedley, *op. cit.*, ix., p. 384.

(Plate iii., fig. 45.)

A specimen from Darnley Island (height 2·5, major diam. 3·4, minor diam. 3 mm.) is here figured. I cannot distinguish this from the New Guinea *S. maino*, which I therefore suppress as a synonym. Because it is not of Latin form, the name *maino* is not as acceptable as *reedei*.

SITALA NEPEANENSIS, Brazier.

Helix (*Conulus*) *nepeanensis*, Brazier, Proc. Linn. Soc. N.S.W. i., 1876, p. 102.

(Plate iii., figs. 40-42.)

One of the type lot from Nepean Island is here figured. The dimensions of it are: height 2·6, major diam. 3·64, minor diam. 3·48.

Sitala darnleyensis, Brazier.

Helix (*Conulus*) *darnleyensis*, Brazier, Proc. Linn. Soc. N.S.W. i., 1876, p. 102.

(Plate iii., fig. 43.)

One of the types from Darnley Island is here drawn. Its dimensions are: height 5, major diam. 5·3, minor diam. 5 mm.

Sitala barnardensis, Brazier.

Helix (*Conulus*) *barnardensis*, Brazier, Proc. Linn. Soc. N.S.W. i., 1876, p. 102.

(Plate iii., fig. 44.)

The single specimen taken by the Chevert Expedition at Barnard Island, No. iii., is here depicted. Its measurements are: height 1·9, major diam. 2·35, minor diam. 2·1 mm.

Helix porti, Brazier.

Brazier, Proc. Linn. Soc. N.S.W. i., 1876, p. 104.

The single specimen from Albany Island is rather broken. It seems to me to be a *Pupisoma*, but not *P. circumlitum*, Hedley.

Flammulina (?) grenvillei, Brazier.

Helix (*Conulus*) *grenvillei*, Brazier, Proc. Linn. Soc. N.S.W. i., 1876, p. 104.

(Plate iii., fig. 46.)

The single representative of this species from the Home Islands is still preserved in the Macleay Museum. Its size is: height 1·18, major diam. 1·46, minor diam. 1·3 mm. Brazier was in error in describing it as imperforate, for I find a minute narrow perforation. The type is so wrapped in matted fungoid threads as to obscure details. Hence I have been unable to satisfactorily make out the lines of bristles described, and my drawing conveys only the general shape. The systematic position of the species is quite uncertain.

With this species I have completed the work of figuring the unfigured shells of the Chevert Expedition. *Rhytida jamesi*, Brazier (P.L.S.N.S.W. i., 1876, p. 99) is now regarded by its author as synonymous with *R. franklandiensis*, Forbes. This decision, in which I concur, makes a figure of it needless.

The Genus Ctiloceras.

(Plate ii., figs. 28, 29, 30.)

The name *Ctiloceras* was proposed by Watson* for a remarkable shell taken in Torres Straits. Whether the shell is adult, and to what group it belongs, are unknown. Watson suggested that it was related to *Cæcum*, and yet included it among *Vermetus*.

A larger series than Watson studied has come into my hands, and it appears that several species of *Ctiloceras* occur. Although I regard *Ctiloceras* as an immature state comparable to *Sinusigera*, possibly the young of species already named, yet it seems convenient to apply provisional names to the different forms.

For comparison a mutilated example of *C. cyclicum*, Watson, is shown at fig. 28. It is 1·6 mm. in major diameter, and was found by Mr. J. Brazier in Torres Straits at the depth of 8 fathoms.

Taken by the same collector in the same locality is a shell shown at fig. 30 which measures 1·54 mm. in major diameter. It is at once separable by its clathrate sculpture. I propose to call it *Ctiloceras clathratum*.

Another and more advanced form, shown at fig. 29, I name *Ctiloceras striatum*. In this the nucleus is more prostrate than in the others, the first spiral whorl is more tightly coiled, leaving a smaller orifice; the radiating sculpture is weak and distant; close fine spiral grooves ornament the shell. In the example drawn there are one and one-half spiral whorls. The aperture is rather broadly reflected. There is no evidence to show whether this feature indicates maturity or the approach of a third stage in

* Watson, Reports Chall. Exped. xv., p. 465, pl. xxi. f. 1.

growth. It is 1·36 mm. in major diameter, and was taken by Mr. Brazier in 20 fathoms off Cape Grenville, Queensland.

On the genus Lippistes.

In examining the type shells of the Chevert Expedition* I had occasion to revise several species referred to *Trichotropis*, and concluded that the genus *Separatista* included four Australian species, viz. :—*S. separatista*, Dillwyn, *S. gracilenta*, Brazier, *S. torcularis*, T. Woods, and *S. gabrieli*, Pritchard & Gatliff.

A casual and inaccurate allusion to *Lippistes* by Melvill and Standen† induced me to write to Mr. B. B. Woodward for information on *Lippistes* and its relation to *Separatista*. Mr. Woodward in turn consulted Mr. E. A. Smith, and to these gentlemen I am deeply indebted both for the following information and for permission to publish it. Mr. Woodward writes :—

"*Lippistes* is a good genus; its type is the *Argonauta cornu*, Gmel., figured by Montfort,‡ and subsequently and better by von Fichtel (Test. Micr., pl. i.). There are good specimens in the British Museum collection, and it is very clear.

"As you say there are two *Turbo helicoides*, Gmel.; and Dillwyn selected the first and re-established Chemnitz's name for it of *Turbo separatista;* but Chemnitz, not being at that time binomial, the species must be attributed to Dillwyn.

"Gray, in 1847 (P.Z.S., p. 136), apparently ignorant of Dillwyn's work, raised this species to generic rank as *Separatista*, and, while quoting the reference to Chemnitz correctly, misquoted Gmelin, and gave as type, '*Turbo helicina*, Gmelin,' meaning of course '*helicoides*.'

"Then Adams (P.Z.S., 1850, p. 45), seemingly knowing nothing of Dillwyn's doings, and possibly recognising the double *helicoides*, rechristened the beast '*Separatista chemnitzii*,' and made some observations on *Lippistes* and *cornu* which are absolutely wide of the mark.

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* Hedley, Records Aust. Museum, iv., 1901, p. 126.

† Melvill & Standen, Proc. Zool. Soc. 1901, p. 361.

‡ Montfort, Conch. Syst. ii., 1810, pl. xxxiv., p. 217.

"Gray's surmise that *Lippistes* might be a synonym for his *Separatista* proves correct, and the former name having priority stands, hence :—

"Lippistes, Montfort, 1810 [= *Separatista*, Gray, 1847].

"1. *L. cornu* (Gmel.). Type [*Separatista Grayii*, Ad., *loc. cit.*] (5 carinæ).

"2. *L. separatista* (Dillwyn). Type of *Separatista* (3 carinæ) [= *Turbo helicoides*, Gmel., p. 3598.
= *Turbo separatista*, Dillwyn.
= *Separatista chemnitzii*, Ad.]

"There are, I fancy, more species, but these are for the moment immaterial."

In view of this information so kindly communicated by Mr. Woodward, it will be necessary to transfer the four Australian species—*S. separatista*, *S. gracilenta*, *S. torcularis*, and *S. gabrieli* —from *Separatista* to *Lippistes*. I have noted some remarks by Dall on *Lippistes* (Bull. Mus. Comp. Zool. xviii., 1889, p. 386-7) and *Separatista* (Bush, Trans. Connect. Acad. x., 1897, p. 105).

On Perry's Australian Shells.

Perry's work is of particular importance to Australian naturalists, because he had access to early collections of Australian shells, especially to that of Lieut.-Col. Wm. Paterson, who filled the post of Lieut.-Governor of New South Wales in 1800-1802, and corresponded* with Sir Joseph Banks.

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* Colonel Paterson deserves to be remembered as one of the earliest Australian conchologists. He arrived in Sydney in 1790 as a captain in the New South Wales Corps, with a high reputation as a traveller and naturalist, having already published a work—"A Narrative of Four Journeys into the Country of the Hottentots and Caffraria in the years 1777-8-9," dedicated to Sir Joseph Banks. He had ample opportunities during two decades for collecting in Australasia. Besides various journeys in New South Wales, he commanded the settlement at Norfolk Island and founded that at Port Dalrymple in Tasmania. An affluent of the Hunter River is named in his honour, and Robert Brown dedicated the genus *Patersonia* to him. He appears to have corresponded with Lamarck, for two Australian shells are acknowledged—*Corbula taitensis*, from a M. Patersoon; and *Buccinum brasilianum*, from Madame Paterson.

The full title of his book is :—"Conchology | or the | Natural History of Shells: | containing | a new arrangement of the genera and species, | illustrated by | coloured engravings | executed from the natural specimens, | and | including the latest discoveries | by | George Perry." London, 1811.

The work is post-Linnean, the species are named binomially, and are systematically figured and described. In short, the nomenclature fulfils the requirements of modern zoological legislation, and must take precedence of younger names. The illustrations vary in merit; some are excellent, others are wretched; but most, if not all, are recognisable.

Gray wrote in 1829 :—"I have ventured to refer to this work, as I consider that it is just that every author should be quoted; and this author has anticipated Lamarck, Swainson and Sowerby in several species."*

Gray put his principles into practice by withdrawing his *Cypraea princeps* in favour of Perry's prior *Cypraea valentia.*

Deshayes did not meet with Perry's book until he had partly completed his second edition of Lamarck's Animaux sans Vertèbres. But through the latter part of that work he regularly quoted Perry, and withdrew his species *Fusus laticostatus* in favour of Perry's earlier name of *F. variegatus.*

Sowerby and Reeve were not disposed to acknowledge any work which upset their species. They ungenerously denied Perry's right to be cited, and assailed his nomenclature with hatred and abuse.† So powerful and evil was their influence that Perry's 'Conchology' has been practically suppressed by London writers. Even the brothers Adams, who offended against modern usage by adopting names from polynomial and pre-Linnean writers, yet refused to admit Perry's names.

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* Gray, Zool. Journal, iv., p. 68.

† Sowerby, Zool. Journal, iv., p. 217: Reeve, Conch. Icon. iii., Cypræa, Sp. 17, note; iv., Fusus, Sp. 33, note; and vii., Ranella, Sp. 47, note.

The restoration of certain of Perry's names is required by the rules of zoological nomenclature. After a careful examination of Perry's 'Conchology,' and guided by the references of Deshayes and others, I have compiled the following list of those Australian shells which apparently were first described by Perry :—

Monoplex cornutus, Perry (pl. iii., f. 1), takes priority over *Triton exaratus*, Reeve, 1844.

Monoplex formosus, Perry (pl. iii., f. 5), is recognised by Deshayes (An. s. Vert. ix., p. 635) as a synonym of *Triton clavator*, Lamarck, 1822 (= *Murex clavator*, Dillwyn, 1817). *Triton sinensis*, Reeve, seems to me to be identical.

Biplex australasia, Perry (pl. iv., ff. 2, 4), is identified by Deshayes (An. s. Vert. ix., p. 542) as *Ranella leucostoma*, Lamarck, 1822.

Biplex perca, Perry (pl. iv., f. 5) is given precedence by Deshayes (An. s. Vert. ix., p. 556) over *Ranella pulchra*, Sowerby, 1844.

Biplex rubicola, Perry (pl. v., f. 5), is identified by Mörch (Cat. Yoldi Coll., 1852, p. 106) as *Ranella granifera*, Lamarck, 1822.

Triplex frondosa, Perry (pl. vi., f. 1), is quoted by Brazier (Cat. Murex, p. 60) as equivalent to *Murex australis*, Quoy & Gaimard, 1832, and to *M. palmiferus*, Sowerby, 1840. He overlooked the fact that *Murex australis* was preoccupied by Gmelin, 1790. *Triplex denudata*, Perry (pl. vii., f. 2), seems to me to be the same species. I recommend the use of *Murex denudata*, Perry.

Triplex flavicunda, Perry (pl. vi., f. 2), and *T. rubicunda*, Perry (pl. vi., f. 2), are marked by Deshayes (An. s. Vert. ix., p. 574) as synonyms of *Murex adustus*, Lamarck, 1822. Over all these names *Purpura scabra*, Martyn (Univ. Conch. 1789, pl. 113), has precedence.

Septa parkinsonia, Perry (pl. xiv., f. 1), is obviously identical with *Triton fusiforme*, Kiener, 1842.

Septa rubicunda, Perry (pl. xiv., f. 4), is *Triton nodiferum*, Lamarck, 1822. Plates i.-ii. of Hunter's 'Historical Journal'

(1793) represent this species, but have never before been quoted or identified.

Voluta pattersonia, Perry (pl. xvii., f. 1), an extra-limital species, is introduced to note that Deshayes apparently erred in considering (An. s. Vert. ix., p. 402) this to be *Cancellaria reticulata*, Linn. Brazier has stated (P.L.S.N.S.W. [2], ii., p. 996), as I believe correctly, that this illustration represents *V. nucleus*, Lamarck. As, however, Lamarck's preliminary description of that species bears the same date (1811) as Perry's, there is no need to disturb the accepted nomenclature.

Cyprœa valentia, Perry (pl. xxiii., f. 2), is recognised by Gray (Zool. Journ. iv., p. 68) as *Cyprœa princeps*, Gray, 1824. This species has occurred at Warrior Reef, Torres Straits.

Bulimus carinatus, Perry (pl. xxx., f. 1), has been recognised by Pilsbry (Nautilus, xv., p. 8) as *Cantharidus peronii*, Philippi, 1846. Jay (Cat. Shells, 4th ed., 1852, p. 192) has wrongly identified this as *Bulimus zebra*, Müller.

Bulimus eximius, Perry (pl. xxx., f. 2), has been recognised by Pilsbry (Nautilus, xv., p. 8) as *Cantharidus badius*, Wood, 1856.

Cassidea labiata, Perry (pl. xxxiv., f. 1), takes priority over *Cassis achatina*, Lamarck, 1822.

Mitra abbatis, Perry (pl. xxxix., ff. 2-3), was described by Lamarck in the same year as *M. pontificalis*. The latter need not be disturbed.

Bulla ferruginosa, Perry (pl. xl., f. 2), is identified by Pilsbry (Man. Conch. xv., p. 389) as equivalent to *Hydatina albocincta*, Hoeven (1839), but he adds that its use is barred by the prior *Bulla ferruginea*, Gmelin (1790).

Aranea triremis, Perry (pl. xlv., f. 3), is recognised by Deshayes (An. s. Vert. ix., p. 566) as *Murex tenuispina*, Lamarck, 1822.

Pyrula undulatus, Perry (pl. liv., f. 1), is *Fusus pyrulatus*, Reeve, 1847.

Pyrula australasia, Perry (pl. liv., f. 4), is identified by Deshayes (An. s. Vert. ix., p. 434) as *Fasciolaria filamentosa*,

Lamarck, 1822. But it seems to me to be a variety of *Fasciolaria fusiformis*, Valenciennes (1840), whose name it should replace.

Pleurotoma acuta, Perry (pl. liv., f. 5), is quoted by Deshayes (An. s. Vert. ix., p. 352) as equivalent to *Pleurotoma tigrina*, Lamarck (1822).

Tellina aurea, Perry (pl lv., f. 2) is evidently *T. vulsella*, Chemnitz, = *T. rostrata* of other authors than Linné, not *T.* (*Phylloda*) *aurea*, Schumacher (1817). Since by Hanley's showing (Ips. Linn. Conch., p. 38) the Linnean name has been generally misapplied, and that of Chemnitz was not binomial, Perry's name should be utilised. I collected this species at Dunk Island, Queensland, last year.

Venus disjecta, Perry (pl. lvii., f. 3), is beyond doubt identical with *Venus lamellata*, Lamarck (1818). This name of Lamarck's was preoccupied by Linné (1767). The species should be quoted as *Chione disjecta*, Perry.

EXPLANATION OF PLATES.

Plate i.

Figs. 1-4.—Hinge and various aspects of *Congeria lunata*, Hedley.
Figs. 5-9.—Hinge and various aspects of *Mactra parkesiana*, Hedley.
Figs. 10-14.—Hinge and various aspects of *Rochefortia donaciformis*, Angas.

Plate ii.

Figs. 15-17.—Hinge and different aspects of *Bornia filosa*, Hedley.
Figs. 18-20.—Various aspects of *Liotia incidata*, Hedley.
Figs. 21-23.—Various aspects of *Liotia corona*, Hedley.
Fig. 24.—*Crossea biconica*, Hedley.
Fig. 25.—*Crossea gatliffi*, Hedley.
Fig. 26.—*Mecoliotia spinosa*, Hedley.
Fig. 27.—*Retusa nitida*, A. Adams.
Fig. 28.—*Ctiloceras cyclicum*, Watson.
Fig. 29.—*C. striatum*, Hedley.
Fig. 30.—*C. clathratum*, Hedley.

Plate iii.

Fig. 31.—*Pyrgulina senex*, Hedley.
Fig. 32.—*Pyrgulina umeralis*, Hedley.
Fig. 33.—*Pyrgulina perspectiva*, Hedley.
Fig. 34.—*Pyrgulina zea*, Hedley.
Fig. 35.—*Teinostoma involuta*, Hedley.
Fig. 36.—*Aplustrum brazieri*, Angas.
Fig. 37.—*Pupina nitida*, Brazier.
Fig. 38.—*Pupina crossei*, Brazier.
Fig. 39.—*Bifidaria macleayi*, Brazier.
Figs. 40-42.—Various aspects of *Sitala nepeanensis*, Brazier.
Fig. 43.—*Sitala darnleyensis*, Brazier.
Fig. 44.—*Sitala barnardensis*, Brazier.
Fig. 45.—*Sitala reedei*, Brazier.
Fig. 46.—*Flammulina* (?) *grenvillei*, Brazier.